

APPENDIX E: OPERATIONS AND MAINTENANCE PROGRAM

Using a model marina as a guide, this chapter shows how to develop an operations and maintenance program (OMP). This sample plan was developed using the suggested best management practices presented in the previous chapters. Developing an operations and maintenance plan creates the opportunity to evaluate the effectiveness of a facility's operations and practices. The key components to a plan include a description and map of the site layout, a detailed description of activities and procedures that occur at the facility, and a list of the BMPs that are either appropriate or inappropriate to mitigate nonpoint source issues at the facility.

SITE LAYOUT

The average marina is a small-to-medium owner-operated facility located in an estuary on the southern Maine coast. In this example, the marina has the capacity to wet-store 96 boats on three dock systems: one fixed, two floating, and seven single point moorings. There are no dry racks, the largest vessel the facility wet-stores is approximately 50 feet, and the average size boat is 28 to 32 feet. Smaller boats, under 25 feet in length, are also stored and make up about 10% of the boat population. There is an almost even mix of sailboats and power boats. On occasion during the boating season, transients do visit the boatyard, but the primary focus is on seasonal tenants.

The upland area is less than one acre (40,000 sq. ft), and contains two small structures. Winter boat storage and parking occupy the rest of the upland area. This area is surfaced with a mix of gravel and hard-packed sand. There is no pavement on the site. Parking is on a first come-first serve basis, with adequate spaces for over 71 automobiles. Below the parking area is an underground storage tank for fuel and a septic system. This area is surfaced with a mix of gravel and hard-packed sand.

The facility, like many in Maine, is in a residential neighborhood. A small paved road separates the marina facility from the residential homes to the east, and the other two sides are also abutted by residential homes. On the water side, a federal navigational channel is approximately 70 feet westward of the docks.

Structures

Two nonpermanent buildings are on the upland area of the property. The larger main building houses the business office, ship's store, and rest rooms. The smaller building stores equipment and materials used in the operation of the marina. Bulkheads and revetments create the land-water interface. See site plan for locations.

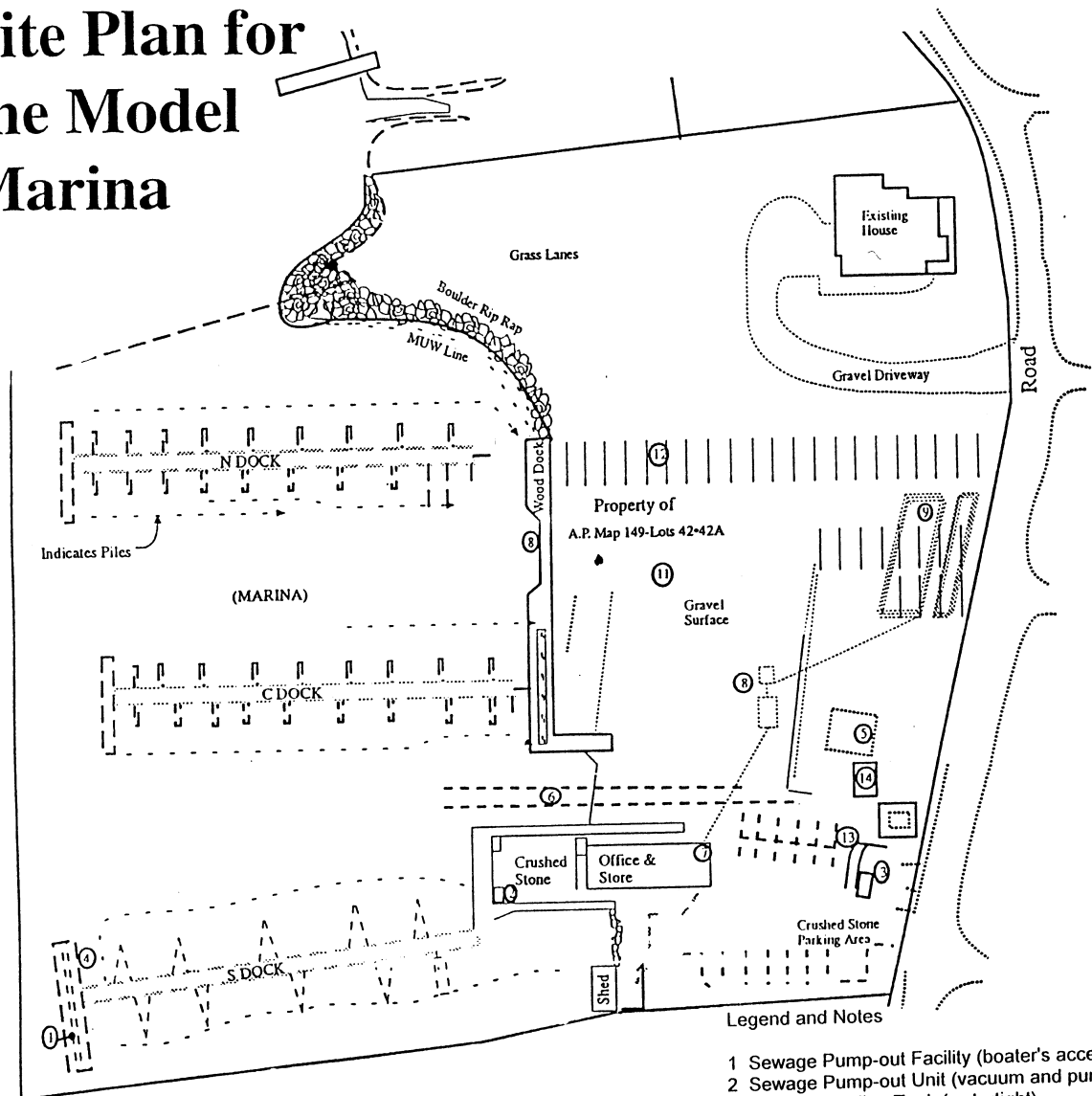
Miscellaneous

The location of the federal channel and municipal mooring fields, underground utilities, established riparian lines; and general location of docks, piers, etc. on abutting properties can be found on the site plan.

SERVICES AND ACTIVITIES

Service facilities available at the marina include: a pumpout station and a fuel pump located on the south pier; restrooms in the main building; marine railways and a crane for hauling boats; and a ship's store. See the site plan for these locations. The property is used primarily for storing recreational boats. In addition to boat storage, other activities include: winterizing and commissioning; minor engine repair, wood and fiberglass repair; and hull scraping and painting.

Site Plan for the Model Marina



Notes:

1. This is a composite plan based upon other plans prepared for this marina. (See RICRMC Assent No. A95-1-55, modified 2/23/94.) Further detail showing underground piping and electrical utilities are shown on larger scale plans.
2. "A dock" and "C dock" are floating docks, "B dock" is fixed pile and timber.
3. Boat capacity is 96 boats.

- ## Legend and Notes
- 1 Sewage Pump-out Facility (boater's access)
 - 2 Sewage Pump-out Unit (vacuum and pump)
 - 3 Sewage Holding Tank (watertight)
 - 4 Gasoline and Diesel Dock Pumps
 - 5 Underground Gas & Diesel Fuel Tanks
 - 6 Railway Boat Launch (winch operated)
 - 7 Restroom & Shower Facilities (in building)
 - 8 Septic Tank and Pump Chamber
 - 9 Leaching Field (RIDEM 8536-104)
 - 10 Boat Launching Area by Crane
 - 11 Boat and Hull Repair Area
 - 12 Typical Parking Space (gravel lot, no lines)
 - 13 Water Service Line (town water supply)
 - 14 Liquid Waste Receptacle

Scale 1"=40' July 1994

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The boatyard hauls boats from the water by one of two methods. First, a crane and sling raises boats from the water onto a trailer on which they can be moved around the facility. The second method is a marine railway system in which boats are floated onto a cart and winched up the rails.

Dry Rack Storage

There is no dry rack storage. During the winter, the upland facility stores the boats.

IMPLEMENTATION OF BEST MANAGEMENT PRACTICES

It may be that many of the practices necessary to minimize nonpoint source pollution at a marina are already in place and only some housecleaning and implementation of a few selected BMPs may be necessary. New BMPs to be implemented at the example marina include an oil waste receptacle, an oil spill response plan, and improved painting and sanding practices.

A more wide-scale practice that needs to be implemented is the close supervision of tenants to be sure that they are using tarps below where they are cleaning. If this proves to be inadequate, then the facility should, in all likelihood, purchase a vacuum sander and make it available to its customers for a small fee. If the tenants do not embrace the practices, the final step is to include some language in the contract requiring proper procedures. The best solution to this problem would be to offer a specific area within the facility where boats can be moved for work – an area specially designed to collect waste easily.

BMP SELECTION AND IMPLEMENTATION SCHEDULE

The worksheets included at the end of this section address all the BMPs, arranged by nonpoint source pollution category, that are appropriate for a model marina. The worksheets help the marina operator to evaluate which BMPs and changes are needed. In the example above, the BMPs that were selected for implementation were chosen because they worked within the constraints of the facility and met the requirements of the management measures. If the facility had provided different services or had more space, the BMPs may have been different.

1. Storm Water Runoff

Are hull maintenance areas* present on-site?

Yes

No → Next Section
Why?

Best Management Practices:

Install and maintain adequate buffer areas between the coastal zone and upland facilities. Explain:

Existing

Planned

Not
Applicable

Implement effective runoff control strategies such as surfacing area with crushed gravel, decreasing slope of facility towards coastal zone, or installing filters and wet ponds. Explain:

Perform maintenance work inside buildings whenever possible. Explain:

Perform maintenance over tarps to ease the cleanup process and prevent material from being carried into surface waters. Dispose of collected material properly. Explain:

Use vacuum sanders to remove paint from hulls and collect paint dust. Explain:

Other. Explain:

*Hull maintenance areas are areas whose primary function is to provide a place for boats during the scraping, sanding, and painting of their bottoms. If boat bottom scraping, sanding, and/or painting is done in areas other than those designated as hull maintenance areas, this checklist applies to those areas as well. A hull maintenance area may indicate a need for a storm water permit. See Appendix B for additional details.

2. Fueling Stations

Are there fueling stations on site?

Yes

No → Next Section
Why?

Best Management Practices:

Existing

Planned

Not
Applicable

Have adequate spill response equipment. Explain:

Maintain a spill prevention and recovery plan. Explain:

Inform your local harbor master and fire department about your spill protection and recovery plan and equipment. Explain:

Properly dispose of used oil spill response equipment. Explain:

Other. Explain:

3. Solid Waste

Are solid wastes (including trash, recyclables, hull-cleaning debris, waste generated from boat maintenance) produced by the operation, cleaning, maintenance and repair of boats stored on site?

Yes

No →Next Section
Why?

Best Management Practices:

Existing

Planned

Not
Applicable

Provide covered containers for solid waste that is generated within the facility. Explain:

Provide proper disposal facilities for marina patrons. Explain:

Provide facilities for the eventual recycling of appropriate materials, such as glass, aluminum and plastic. Explain:

Support the use of environmentally compatible products. Explain:

Use pamphlets, flyers, newsletters, inserts and meetings to convey the importance of any environmental precautions that have been instituted in the marina. Explain:

Have adequate signs throughout facility identifying BMPs. Explain:

Perform abrasive blasting within spray booths or plastic tarp enclosures to prevent residue from being carried into surface waters. If tarps are used, blasting should be closely monitored on windy days. Explain:

Provide and clearly mark designated work areas for boat repairs and maintenance. Do not permit work outside designated areas. Explain:

Clean trash, sandings, paint chips, etc., immediately after any maintenance activity. Explain:

Insert language into facility contract that requires tenants to use certain areas and techniques when conducting boat maintenance. Explain:

Have a clearly written outside contractors agreement. Explain:

Other. Explain:

4. Fish Waste

Is fish waste a potential source of water pollution within the facility?

Yes

No → Next Section
Why?

Best Management Practices:

Existing

Planned

Not
Applicable

Establish fish cleaning areas. Explain:

Educate boaters regarding the importance of proper fish cleaning practice. Explain:

Issue rules governing the conduct and location of fish cleaning operations. Explain

Other. Explain:

5. Liquid Material

Are liquid materials (including oil, harmful solvents, antifreeze, and paints) used in the maintenance, repair, or operation of boats stored on site?

Yes

No →Next Section
Why?

Best Management Practices:

Have separate containers for the disposal of liquid materials such as waste oil, waste gasoline, used antifreeze, waste diesel, kerosene, and mineral sprits available and clearly labeled. Explain:

Existing

Planned

Not
Applicable

Institute a recycling program for oil filters. Explain:

Build curbs, berms or other barriers around areas used for the storage of liquid material to contain spills. Store materials in areas impervious to the type of material stored. Explain:

Maintain a spill prevention and recovery plan for hazardous material. Explain:

Have adequate spill response equipment for hazardous material.
Explain:

Place containment berms around fixed pieces of machinery within the facility that use oil and gas. Explain:

Recycle where possible, adhere to existing state regulations pertaining to disposal of hazardous material. Explain:

Enforce the prohibition on the use of TBT-based paint. Explain:

Use environmentally compatible antifreeze. Explain:

Keep to a minimum amounts of hazardous materials stored and used
Explain:

Provide to marina tenants information on collection and recycling program and source reduction
Explain:

Direct marina patrons as to the proper disposal of all liquid material through the use of signs. Explain:

Insert language into facility contract that requires tenants to dispose of hazardous material in the proper containment facilities
Explain:

Other
Explain:

6. Petroleum Control

Do fuel and oil from boat bilges and tank air vents enter the ground and surface waters?

Yes

No → Next Section
Why?

Best Management Practices:

Existing

Planned

Not
Applicable

Promote the use of oil-absorbing material in the bilge areas of all boats with inboard engines. Explain:

Use automatic shut-off nozzles and promote the use of fuel/air vents or tank stems of inboard fuel tanks to reduce the amount of fuel spilled into surface waters during fueling of boats. Explain:

Provide to marina tenants information on collection and recycling programs for oil and oil absorbing pads. Explain:

Direct marina patrons to the proper disposal of all used hydrocarbon products through the use of signs, mailings, and other means. Explain:

Insert language into facility contract that recommends tenants use fuel/air separators and oil absorption materials. Explain:

Other. Explain:

7. In-Water Boat Cleaning

Are the topsides and hulls of boats cleaned or scrubbed in the water?

Yes

No → Next Section
Why?

Best Management Practices:

Existing

Planned

Not
Applicable

Wash the boat hull above the waterline by hand. Explain:

Where feasible remove the boat from the water and perform cleaning where debris can be captured and properly disposed of. Explain:

Recommend and use phosphate-free and biodegradable detergents and cleaning compounds for washing boats. Explain:

Discourage the use of detergents containing ammonia, sodium hypochlorite, chlorinated solvents, petroleum distillates, or lye. Explain:

Other. Explain:

8. Sewage Facility

Are sewage pumpout facilities or dump stations present on site?

Yes

No →Next Section
Why?

Best Management Practices:

Provide the service at convenient times and at a reasonable cost.
Explain:

Existing

Planned

Not
Applicable

Make the pumpout station user friendly. Explain:

Develop and adhere to a regular inspection and maintenance
schedule for the pumpout station. Explain:

Work with local and state governments to declare your harbor a no-
discharge area once adequate pumpout facilities are installed.
Explain:

Provide educational information about the pumpout service to customers. Explain:

Formally advise your municipality that you have a pumpout facility available and provide pertinent information such as time of operation and fee. Explain:

Encourage the local harbor master to enforce existing state and federal regulations pertaining to MSDs. Explain:

Install adequate signs to identify the pumpout station. Explain:

Other. Explain: